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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/597,223	07/17/2006	Ihor Kirenko	FR040013	7921

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EXAMINER
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KIM, HEE-YONG

ART UNIT	PAPER NUMBER
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2482

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12/21/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/597,223	KIRENKO, IHOR	
	<b>Examiner</b>	<b>Art Unit</b>	
	HEE-YONG KIM	2482	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 May 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 May 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. **Claims 1-5** are rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant(s) regard as their invention. Evidence that claim 1 fail(s) to correspond in scope with that which applicant(s) regard as the invention can be found in the reply filed May 30, 2008. Claim 1 represents Figure 1 of drawing. However, the invention (Fig.1) is different from what is defined in claim 1 as shown in the following table.

<b>Claim 1</b>	<b>Figure 1</b>
Encoding said first input stream (FIS)	Encoding Lowpass/Downsampled (Down arrow) version of FIS
Generating a second input (SIS) by difference between said FIS and said locally decoded version of first coded base layer stream	Generating a second input (SIS) by difference between said FIS and upsample/interpolated version (Up arrow) of locally decoded output of first coded base layer stream

3. **Claim 4** has the same feature as claim1. The remaining claims depend either claim 1 or claim 4. Therefore, **Claims 1-5** are rejected.

***Claim Rejections - 35 USC § 101***

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

**Claim 3** is rejected under 35 U.S.C. 101 because it is directed towards nonstatutory subject matter. Claim 3 recites “ a memory medium for encoding video data..”. The memory medium is not further defined in the specification and can include transitory medium such as signal. Therefore, it is rejected.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 1-4** are rejected under 35 U.S.C. 103(a) as being unpatentable over Bruls (US 2005/0,002,458) in view of Li (IEEE trans. on circuit and system for video technology, vol.11. No.3, 2001, pp.301-317), further in view of Suzuki (US 6,173,013), further in view of official notice, hereafter referenced as Bruls and Li and Suzuki respectively.

Regarding **claim 1**, Bruls discloses Spatial Scalable Compression. Specifically Bruls discloses A method of coding video data available in the form of a first input

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stream of video

frames, said method comprising the steps of:

(A) encoding said first input stream (FIS) (Input at Fig.2) to produce a first coded base layer stream (BL1) (base-stream output at Fig.2 ) suitable for a transmission at a first base layer bitrate ;

(C) repeating at least once a process of the same type, i.e. generating a second input stream (SIS) by difference between said first input stream (FIS) (Input, Fig.2) and said locally decoded version (Output of Upsample/Interpolator 150, Fig.2 which upsamples and interpolates base-local-decoded output) of the first coded base layer stream, and applying to said second input stream SIS step of the type (A) in order to produce :

- based on said second input stream (SIS) (First Subtractor on Top, Fig.2), a second coded base layer stream (BL2) (enh-stream output, Fig.2), suitable for a transmission at a second base layer bitrate.

However Bruls fails to disclose:

(B) based on said first input stream (FIS) and a locally decoded version of said first coded base layer stream, generating a first set of residual frames in the form of a first enhancement layer stream and encoding said first enhancement layer stream to produce a first coded enhancement layer stream (EL1);

based on said second input stream (SIS) and a locally decoded version of said second coded base layer stream, a second set of residual frames in the form of a Second enhancement layer stream which is then encoded to generate a second coded enhancement layer stream (EL2);

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(D) any further repetition of said process comprising operations similar to the operations provided in (C) but with progressively increased indices in order to produce third

coded base and enhancement layer streams(BL3, EL3, etc) ;

said first input stream being thus, for obtaining a predetermined required spatial resolution, compressed by :

c) encoding the base layers (BL1, BL2,...) up to said required spatial resolution with a lower bitrate ; and

d) allocating a higher bitrate to the last base layer and/or to the enhancement which corresponds to said required spatial resolution.

In the analogous field of endeavor, Li discloses Overview of Fine Granular Scalability in MPEG-4 Video Standard. Specifically Li discloses generating a set of residual frames (adder output in the FGS enhancement encoding, Fig.7) in the form of enhancement layer stream based on said input stream (Input Video, Fig.7) and a locally decoded version (Output of adder on the bottom, Fig.2) of said coded base layer stream (Base Layer Bitstream, Fig.2) and encoding (Bitplane VLC, Fig.2) enhancement layer bitstream, in order to provide partial enhancement proportional to the number of bits coded for each frame (pp.304, left col., line 12-14).

Therefore, given this teaching, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify Bruls by providing specifically generating a set of residual frames in the enhancement layer bitstream by subtracting a locally decoded versions from the input stream and Bitplane encoding enhancement

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layer bitstream in the first layer and repeating the same in the second layer, in order to provide partial enhancement proportional to the number of bits coded for each frame.

However, Bruls and Li still fail to disclose the above (D).

In the analogous field of endeavor, Suzuki discloses Method and Apparatus for Encoding enhancement and Base Layer Image Signals Using a Predicted Image Signal. Specifically Suzuki discloses (D) any further repetition of said process (repeating same step and generating third level scalable structure as shown in Fig.34), in order to apply the scalable encoding technique to an arbitrary number of layers (p.38, line 14-19).

Therefore, given this teaching, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify Bruls and Li by providing specifically repeating (C) to generate main layer bitstream (BL3) and enhancement layer bitstream (EL3) in third level which involves generating the predetermined required resolution signals for each level (previously base layer input signal is down sampled once, now down sampled twice), in order to apply the scalable encoding technique to an arbitrary number of layers. However, Bruls and Li and Suzuki fail to disclose (c) encoding the base layers (BL1, BL2,...) up to said required spatial resolution with a lower bitrate ; and (d) allocating a higher bitrate to the last base layer and/or to the enhancement. which corresponds to said required spatial resolution.

However, it was well known in the art that higher resolution image requires more bits to encode. Therefore, it was obvious that allocating lower bit rate to lower levels (BL1 and BL2) and higher bit rate to the last base and enhancement layer bitstreams. The Bruls scalable encoding, incorporating the Li generating enhancement bit stream by

residual difference between input and coded stream and encoding it by Bit-plane, further incorporating the Suzuki repeating generating second level to generate 3 level scalable structure which involves the 3 level spatial resolution signals, has all the features of claim 1.

Regarding **claim 2**, Bruls and Li and Suzuki disclose everything claimed as applied above (see claim 1). Bruls further discloses that before each repeating step according to (C) or (D), a DC-offset value (DC-offset 360, Fig.3) is added to the input stream corresponding to said repeating step.

Regarding **claim 3**, the claimed invention is a computer readable medium claim corresponding to the method claim 1. Therefore, it is rejected for the same reason as claim 1.

Regarding **claim 4**, the claimed invention is an apparatus claim corresponding to the method claim 1. Therefore, it is rejected for the same reason as claim 1.

7. **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over Bruls in view of Li, further in view of Suzuki, further in view of official notice, and further in view of Chaddha (US 5,621,660), hereafter referenced as Chaddha.

Regarding **claim 5**, Bruls and Li and Suzuki disclose everything claimed as applied above (see claim 1). However, they fail to disclose A transmission system comprising a video coding device according to claim 4; and, in said device or in association with it, a controller of the transmission of said coded base layers (BL1, BL2,...) and enhancement layers (EL1, EL2,...) to a plurality of decoders or



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users belonging to a multimedia network, said controller implementing a transmission of all or some - depending on the bandwidth available - of the coded base layers and, according to the requirements of a specific decoder or user or to associated decoding capabilities, a coded enhancement layer at the corresponding specific resolution only to said decoder or user.

In the analogous field of endeavor, Chaddha discloses Software-Based Encoder for a Software-Implemented End to End Scalable Video Delivery System. Specifically Chaddha discloses A transmission system (Fig.1) and, in said device or in association with it, a controller ( Rate Scaling on Same Network, Fig.1) of the transmission of said coded base layers (BL1, BL2,...) ( Base Layer, Fig.3) and enhancement layers (EL1, EL2,...) ( First and Second Enhancement Layer , Fig.3) to a plurality of decoders or users ( plurality of users, col.3, line 32-33) belonging to a multimedia network (Network Cloud, Fig.1), said controller implementing a transmission of all or some - depending on the bandwidth available ( bandwidth scalability, col.2, line 42-43 ) - of the coded base layers and, according to the requirements of a specific decoder or user or to associated decoding capabilities ( decoder capability, col.2, line 54), a coded enhancement layer at the corresponding specific resolution (decoders may extract video having different resolutions spatial resolution, col.2, line 43-48) only to said decoder or user, in order to do end-to-end scalable video delivery system over heterogeneous networks (abstract).

Therefore, given this teaching, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify Bruls and Li and Suzuki by providing specifically transmitting scalable video delivery which transmits all or some of base

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layers and enhancement layer bitstreams based on available bandwidth and decoder capability. The Bruls scalable encoding, incorporating the Li generating enhancement bit stream by residual difference between input and coded stream and encoding it by Bit-plane, further incorporating the Suzuki repeating generating second level to generate 3 level scalable structure which involves the 3 level spatial resolution signals, further incorporating the Chaddha transmitting scalable video delivery which transmits all or some of base layers and enhancement layer bitstreams based on available bandwidth and decoder capability

### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to HEE-YONG KIM whose telephone number is (571)270-3669. The examiner can normally be reached on Monday-Thursday, 8:00am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha Banks-Harold can be reached on 571-272-7905. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/HEE-YONG KIM/  
Examiner, Art Unit 2482

/Marsha D. Banks-Harold/  
Supervisory Patent Examiner, Art  
Unit 2482